young, engorged blood channels with free hemorrhage and edema. After the first week, definite changes in the tumor cells occur and remain dominant. Both the nuclei and protoplasm swell, the former becoming uniformly pyknotic and their staining affinity changing from basophilic to acidophilic. A progressive vacuolar degeneration along with the eosinophilia, suggests profound chemical destruction. The tissues nearest the radium suffer first and, depending on the treatment, may resume malignant activities or proceed to more advanced retrogression. After continued radiation, mitotic figures disappear, usually in the second week and the stroma begins its ever-increasing advance, at first becoming diffuse so that the carcinoma really resembles a sarcoma. Later, the parenchyma is split into irregular islands by bands of cellular, young connective tissue. From the third week onward the chromatin substance suffers markedly, until, with dispersion of the nuclei it forms irregular globules and a diffuse mesh-work. About nine weeks after radiation, groups of peculiar, foamy, chromatin bodies occur in the stroma which increases in amount with a consequent decrease in the parenchyma. The author calls especial attention to the primary destruction of the tumor cells by the radium rays and the secondary increase in the connective tissue, which, while never actively proliferating, increases in volume, later only to contract into the usual collagenous or hyaline scar tissue.

## HYGIENE AND PUBLIC HEALTH

UNDER THE CHARGE OF

MILTON J. ROSENAU, M.D.,

PROFESSOR OF PREVENTIVE MEDICINE AND HYGIENE, HARVARD MEDICAL SCHOOL, BOSTON, MASSACHUSETTS,

AND

GEORGE W. McCOY, M.D.,

DIRECTOR OF HYGIENIC LABORATORY, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

**Health Activities in Colleges and Universities.**—SUNDWALL (*Public Health Reports*, No. 45, xxxiv, 2489) gives the following as a summary of an exhaustive treatment of the subject: (1) *Aims:* The University Health Service endeavors to be a most potent factor in reducing to the very minimum that large annual academic and economic loss which is due to the indisposition and illness of students. Further, its aim is to help each student entering the university to possess a healthy, vigorous, active and harmoniously developed body. The University Health Service stands for positive health. (2) *Activities:* There are three main divisions to its activities: (*a*) Personal attention, (*b*) sanitation, and (*c*) education. (*a*) The personal division is concerned with the physical examination of all students. Complete physical records should be kept. From each record can be determined in a large measure, just what procedure is necessary to keep the student in the best physical condition

during his academic life. The following are some of the branches of the work in the personal division: (*i*) Provisions for maintaining the health of the normal, healthy student by means of proper exercises, etc.; (*ii*) protection of the physically sound student from communicable diseases that are constantly creeping into the university, by the early detection and isolation of all cases of communicable disease—tuberculosis, typhoid fever, smallpox, scarlet fever, mumps, measles, etc.; (*iii*) provisions for the care and treatment of all such cases of communicable diseases; (*iv*) reconstruction-reclamation; correction of defects, advice and treatment to all subnormals; (*v*) advice to and treatment of all ill students. (*b*) Division of Sanitation: The students' environment must be made as hygienic as possible; hence this division concerns itself with the sanitary conditions affecting the student both on and off the campus. (*c*) Education: Finally, every student in the university must be made familiar with the elements of personal and public hygiene. Education in these important matters is carried on by means of courses in these subjects, daily bulletins, exhibits and lectures.

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**Determination of Bacteriotropic Content of Antimeningococcic Serum.**—EVANS (*Public Health Reports*, No. 43, xxxiv, 2375) suggests that inasmuch as the pathology of cerebrospinal meningitis indicates that the bacteriotropins are concerned in the defense of the body against the meningococcus, the determination of the content of these antibodies in therapeutic serums should be of more value than the estimation of agglutinins and complement-fixing antibodies. A grouping of meningococci in accordance with bacteriotropic determinations is given, and it is shown that there is a fair correlation of these groups and the groups established by agglutination reactions. The content of the various antibodies in different serums does not always run parallel, and the same is to be said with respect to the loss of antibodies through the operation of unfavorable influences. The test is regarded as a valuable one for the testing of commercial serums.

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**Field Experiments in Malaria Control.**—ROSE (*Jour. Am. Med. Assn.*, 1919, lxxiii, 1414) states that for the average town in our Southern States having a thousand or more inhabitants and a reasonably high infection rate, malaria control by antimosquito measures is economically feasible; it is, in fact, a sound business investment. In heavily infected regions, in which the cost of mosquito control would be prohibitive, the amount of malaria may be greatly reduced by resort to screening, to immunizing quinin, or to destroying the parasites in the blood of the human carriers. The indications would seem, in fact, to justify the hope that by the systematic application of these measures the malaria in a community may be held within reasonable bounds, and that this result may be accomplished within limits of cost that the average community may well afford. The people in these communities are prepared to provide the funds by public taxation for malaria control when they have been shown by demonstration that the program proposed will accomplish definite results that justify the expenditure. The results thus far accomplished would seem to justify continuing these field experiments until the principal procedures that have been found useful in controlling malaria have been pretty thor-